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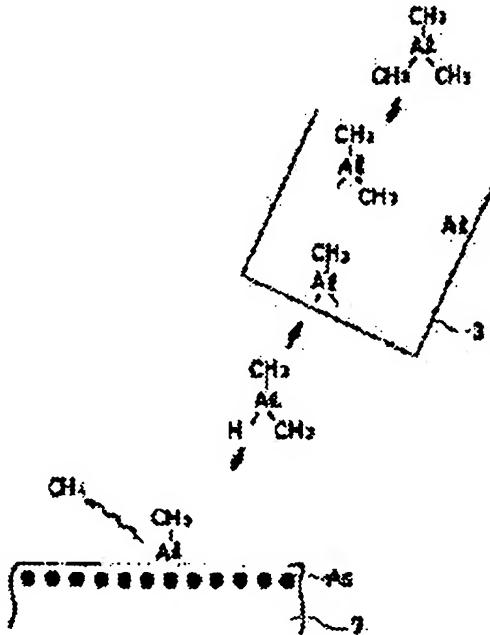
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(54) ATOMIC LAYER CRYSTAL DEPOSITION METHOD AND DEVICE

(57)Abstract:

PURPOSE: To improve the adsorption efficiency at low temperature thereby enabling the title atomic layer crystal deposition of a compound semiconductor conventionally unrealizable to be made feasible by a method wherein at least one alkyl radical coupler coupled with a metal before the molecules to be deposited reach a substrate is thermal-dissociated to be fed to the substrate to be deposited using the alkyl radical molecules.

CONSTITUTION: $(CH_3)_3Al$ having the self deposition stopping function passes through a quartz tube 3 to be thermal-dissociated into $-(CH_3)_2Al$, $-(CH_3)Al$, Al atoms. At this time, the Al atoms stick to the inner wall of the quartz tube 3 while the couplers of $-(CH_3)_2Al$ are coupled with hydrogen to be a stable $H(CH_3)_2Al$ compound. On the other hand, $-CH_3Al$ is also coupled with hydrogen atoms but to be so unstable compound that $-CH_3Al$ may be changed into $H(CH_3)_2Al$. Accordingly, the hydrogen of the $(CH_3)_2Al$ reaching the substrate 7 surface is dissociated when Al reacts to As on the substrate surface so that Al and As may be easily coupled with each other into a compound at relatively low temperature. Through these procedures, the title atomic layer crystal deposition of a compound semiconductor conventionally unrealizable can be made feasible.



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